8. (new) Improved efficiency impact absorption device (10, 10'), which comprises a honeycomb (20), said honeycomb (20) having a number of ribs (11) that define respective outlets (12), having a hexagonal section, terminating in holes (13), in a lower part of the honeycomb (20), the above-mentioned honeycomb (20) being injection-molded in plastic, wherein the plastic is a plastic resin derived from a polycarbonate wherein said impact absorption device is combined with a deformation containment element positioned around at least one longitudinal end of said honeycomb.

REMARKS

In paragraph 2 of the Office Action, the Examiner rejected claims 1-7 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Reconsideration is requested in light of the amendments to claims 1 and 7.

Claim 1 has been amended to provide a proper antecedent basis for the recitation "lower part" in line 6.

The Examiner rejected claim 6 on the basis that the recitation "the above-mentioned containment element is obtained directly on the vehicle" is indefinite. Applicant respectfully points out that the above-mentioned limitation is recited in claim 7, but not in claim 6. Accordingly, Applicant has amended claim 7 to particularly point out that

the containment element is fastened directly on said vehicle.

In light of the foregoing amendments to claims 1 and 7, Applicant respectfully requests that this ground of rejection be withdrawn.

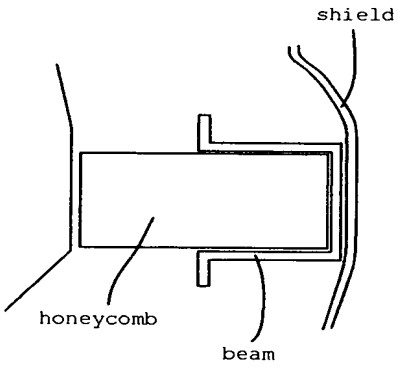
In paragraph 4 of the Office Action, the Examiner rejected claims 1-7 under 35 U.S.C. § 102(b) as being anticipated by Goupy et al.

Reconsideration is requested.

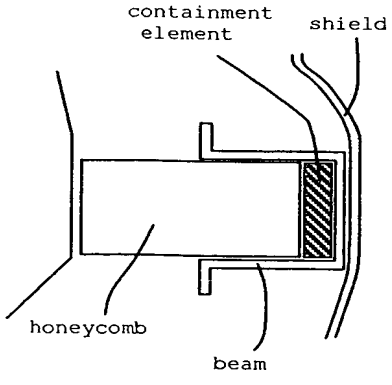
Claims 1 and a portion of claim 4 have been combined in amended claim 1.

The present invention provides an improved energy absorption device which comprises a honeycomb structure having at the top, a stiff containment element made of a high tensile material such as steel. The containment element is sized to withstand the stress of an impact and the resulting lateral thrust that is generated by the honeycomb structures when they are impacted by a force applied to the beam element.

The following sketches compare the prior art with the claimed invention:



Prior art



804'
Application

Goupy et al. discloses an energy absorbing beam (1) inserted within a shield (3) and disposed between the energy absorbing elements (2) and the shield (3). Goupy et al. does not disclose the use of a containment element according to the invention. The beam of Goupy et al. merely discloses a structure that disperses the impact forces over the honeycomb support structure. The honeycomb structure of Goupy et al. is not capable of resisting lateral thrusts that develop as the honeycomb absorbs an impact force that is received from the beam element. The containment structure, which is not suggested by Goupy et al., operates to prevent the lateral collapse of the honeycomb. Figs. 3 and 5, of the present application, show the benefits of the containment structure when the honeycomb is impacted with force.

When the beam in the Goupy et al. design is subjected to an impact force, there is no containment element to prevent lateral movement of the honeycomb along the longitudinal axis of the beam. The containment structure of the present invention functions as a "cap" to prevent movement along the longitudinal axis of the beam. The Goupy et al. beam does not provide or disclose any means for providing a containment effect with regard to lateral thrusts that are generated by direct impact on the beam element.

Fig. 2 of Goupy et al. shows the absence of any element which would be capable of restricting lateral movement of the end of a collapsing honeycomb 2, along the longitudinal axis of the beam 1. This is the movement that is prevented by the use of the applicant's containment structure. The Goupy et al.

patent is also deficient in failing to disclose or suggest the use of polycarbonate as a honeycomb material. This preferred embodiment is pointed out in claims 2 and 8.

For the above stated reasons, it is believed that the differences in structure between the claimed device and the prior art point to the novelty and unobviousness of the claimed invention.

An early and favorable action is earnestly solicited

Respectfully Submitted

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Marked Up Copy of Amended Claims

1. (amended) Improved efficiency impact absorption device (10, 10'), [of the type comprising] which comprises a honeycomb (20), [where the above mentioned] said honeycomb (20) [features] having a number of ribs (11) that define respective outlets (12), having a [preferably] hexagonal section, terminating in holes (13), in [the] a lower part of the honeycomb (20), the above-mentioned honeycomb (20) being injection-[moulded] molded in plastic, [characterised in that] wherein the above-mentioned plastic [can be] is a plastic resin derived from polycarbonate or rubber-filled polypropylene wherein said impact absorption device is combined with a deformation containment element positioned around at least one longitudinal end of said honeycomb.

2. (amended) Device (10,10') as in claim 1, [characterised in that] wherein the above mentioned plastic resin derived from polycarbonate is Xenoy®.

3. (amended) Device (10, 10'), as in claim 1 or 2, [characterised in the] wherein the above-mentioned honeycomb features a taper at at least one of its longitudinal ends.

4. (amended) Device (10, 10'), as in claim [1] 3, [characterised in that it is combined with a] said deformation containment element [wrapped] is positioned around [the above-mentioned] said tapered end.

5. (amended) Device (10, 10'), as in claim 4, [characterised in that the above-mentioned] wherein said containment element is made of a high resistance steel material[, preferably steel].

6. (amended) Device (10, 10') as in claim 4 or 5, [characterised in that] wherein the above-mentioned containment element is made integral with the related honeycomb 20.

7. (amended) Device (10, 10'), as in claim 4, [characterised in that] wherein [the above-mentioned] said containment element is [obtained] fastened directly [on] to the vehicle.